

REMARKS

Status of the claims:

With the above amendment, claim 9 has been amended and claims 1-21 are pending and ready for further action on the merits. Reconsideration is respectfully requested in light of the following remarks.

Claim Objections

Claims 9-16 are objected to for reciting "no dislocation line", which the Examiner asserts should be changed to "no dislocation lines". This is clearly a non-narrowing claim amendment. Claim 9 has been amended accordingly. Withdrawal of the objection is respectfully requested.

Rejections under 35 USC §10

Claims 1-21 have been rejected under 35 USC §103(a) as being unpatentable over Brust '019 (US Patent No. 6,100,019) in view of Nishikawa '977 (US Patent No. 6,077,977). This rejection is traversed for the following reasons.

Present Invention

The present invention discloses a silver halide photographic emulsion comprising grains wherein 70% or more of

the total projected area of the grains are occupied by tabular grains meeting the following 5 elements:

- (i) silver bromochloroiodide grains having (111) faces as major surfaces,
- (ii) hexagonal grains having a ratio of the length of an edge having the maximum length to the length of an edge having the minimum length of not more than 2,
- (iii) perfect epitaxial grains having a total of six epitaxial junctions each existing only in each of six apex portions of the hexagonal grains,
- (iv) the silver chloride content is 1 to 6 mol%, and
- (v) the silver iodide content is 0.5 to 10 mol%.

Disclosure of Brust '019

Brust '019 discloses a process of conducting in a single reaction vessel selective site high chloride epitaxy deposition as a continuation of host high bromide {1111} tabular grain emulsion precipitation. Brust '019 further discloses that a host tabular grain emulsion is precipitated accounting for 0.05 to 1.5 moles of silver per liter of dispersing medium. Any iodide at the major faces of the tabular grains is uniformly distributed and any iodide in a surface region of the grains amounts to less than 7 mole, based on silver in the surface region. Until epitaxy is formed, the pH is held in the range of

3 to 8. Gelatino-peptizer in an amount of 1 to 40 grams per Ag mole is added to the emulsion. Chloride ions in the range of from 0.03 to 0.15 mole per liter is dispersed in the emulsion. pBr is held in the range of from 3.0 to 3.8 until epitaxy is formed. Iodide ion in a concentration of from 5×10^{-6} to 1×10^{-4} mole per square meter of grain surface area is uniformly adsorbed to the major surfaces of the tabular grains.

Disclosure of Nishikawa '977

Nishikawa '977 discloses aryldialkylmethanes such as cumene that are converted to the corresponding hydroperoxides by reaction with oxygen in the presence of a promoter which may be an alkali metal borate such as borax, an alkali metal salt of a polymer such as an acrylic polymer, or an alkaline reagent in combination with a specific proportion of added water or water of hydration, also exemplified by borax.

Distinctions over the cited references

Brust '019 discloses tabular grains having epitaxial junctions. Brust '019 also discloses a method of preparing such tabular grains.

Brust '019 further discloses that 2 to 5 corner epitaxies are formed generally when epitaxy is created by adding Ag ions. See column 7, lines 40 to 45. Further, one of the Examples in

Brust '019 indicates that the maximum ratio of those silver halide grains in which epitaxies are formed at all of the six corners of each grain is 68% of all the grains. See column 14, TABLE 1, Example C in Brust '019.

Nishikawa '977 discloses tabular grains containing AgCl in the outermost layer, characterized by a limitation to the aspect ratio and to the structure of the grains. Nishikawa '977 further discloses having dislocation fines. However, Nishikawa '977 makes no mention of tabular grains having epitaxial junctions, one of the features to which the present invention is directed.

The present invention discloses hexagonal tabular perfect epitaxial grains characterized in that 70% or more of the total projected area of the grains has 6 epitaxial junctions. These grains cannot be obtained by the techniques disclosed in the prior art or by Brust '019 and Nishikawa '977. See the present written description, page 94, TABLE 1, and the detailed description on page 95.

Moreover, the present invention exhibits superior effects in terms of both fresh photographic performance and photographic performance after the lapse of time as compared to the effects achieved by the prior art techniques. See the instant written description, page 101, TABLE 3, and the detailed description on page 102.

Brust '019 does not disclose one of the structural elements of the present claimed invention, that is, "perfect epitaxial grains in which 70% or more of the total projected area of the grains has 6 epitaxial junctions". For this reason alone, even if Brust '019 and Nishikawa '977 are combined together, the present invention cannot be achieved. Therefore, Applicants assert that the present invention cannot be rendered *prima facie* obvious from the combination of Brust '019 and Nishikawa '977.

Furthermore, as is well described on page 103, TABLE 4 and page 104, the emulsion of the present invention is extremely stable to a decrease in pBr in the system. (The expression "KBr was added" on page 104, line 4 means that pBr was lowered). The descriptions in Brust '019 regarding pBr, that are pointed out by the Examiner, especially, column 6, lines 60 to 65, discuss that the pBr value of the system is adjusted to 3.0 to 3.8 before adding Ag ions for formation of epitaxy. However, this description specifies the pBr before the formation of epitaxial junctions (that is, before adding Ag ions), which is different from the pBr disclosed in the present invention (that is, after the preparation of the emulsion). This critical difference means that the instant invention discloses a silver halide emulsion that is still stable to a decrease in pBr whereas the emulsion described in Brust '019 (which is similar to that of the Comparative Examples presented in TABLE 4 wherein the amount

of perfect epitaxial grains is less than 70%) is not stable to decreases in pBr. Please see the first three entries in Table 1 on page 94 of the present written description for the amounts of perfect epitaxial grains in these comparative examples.

From the above description, it should be apparent to those of ordinary skill in the art that the instant invention cannot be rendered obvious by the disclosures of Brust '019 and Nishikawa '977. Brust '019 and Nishikawa '977 both fail to disclose the elements of the instant invention. Withdrawal of the rejection is warranted and respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

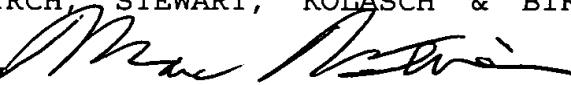
Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$920.00 is attached hereto.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

9. (Amended) The emulsion according to claim 1, wherein the perfect epitaxial grains defined in said requirement (iii) have no dislocation lines except in the epitaxial apex portion.